



Department of Energy
Ohio Field Office
Fernald Environmental Management Project
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JAN 24 2003

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0186-03

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

**TRANSMITTAL OF RESPONSES TO THE UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY COMMENTS AND CHANGE PAGES TO THE CONSTRUCTION
QUALITY ASSURANCE FINAL REPORT FOR PHASE III - CELL 1 FINAL COVER
CONSTRUCTION AT THE ON-SITE DISPOSAL FACILITY**

Reference: Letter, J. Saric to J. Reising, "OSDF Phase III - Cell 1 Final Cover
Construction," dated November 25, 2002

Enclosed for your approval are responses to the United States Environmental Protection Agency (USEPA) comments and change pages to the Construction Quality Assurance Final Report for Phase III - Cell 1 Final Cover Construction at the On-Site Disposal Facility.

If you have any questions or need further information, please contact Arthur Murphy at (513) 648-3132.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FCP:Murphy

Enclosure: As Stated

JAN 24 2003

DOE-0186-03

-2-

Mr. James A. Saric
Mr. Tom Schneider

cc w/enclosure:

A. Murphy, OH/FCP
D. Pfister, OH/FCP
T. Schneider, OEPA-Dayton (three copies of enclosure)
M. Cullerton, Tetra Tech
AR Coordinator, Fluor Fernald, Inc./MS78

cc w/o enclosure:

R. Greenberg, EM-31/CLOV
N. Hallein, EM-31/CLOV
R. J. Janke, OH/FCP
J. Reising, OH/FCP
G. Jablonowski, USEPA-V, SRF-5J
F. Bell, ATSDR
M. Shupe, HSI GeoTrans
R. Vandegrift, ODH
K. Badu-Tweneboah, Fluor Fernald, Inc./MS38
D. Carr, Fluor Fernald, Inc./MS2
J. Chiou, Fluor Fernald, Inc./MS64
T. Hagen, Fluor Fernald, Inc./MS9
U. Kumthekar, Fluor Fernald, Inc./MS64
S. Lorenz, Fluor Fernald, Inc./MS64
T. Poff, Fluor Fernald, Inc./MS65-2
A. Snider, Fluor Fernald, Inc./MS64
C. Van Arsdale, Fluor Fernald, Inc./MS64
W. Zebick, Fluor Fernald, Inc./MS64
ECDC, Fluor Fernald, Inc./MS52-7

**RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL REVIEW COMMENTS ON THE
CONSTRUCTION QUALITY ASSURANCE FINAL REPORT,
PHASE III-CELL 1 FINAL COVER CONSTRUCTION
ON-SITE DISPOSAL FACILITY
(20103-CA-0001, REVISION 0)**

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENT

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: Not Applicable (NA)

Page #: NA

Line #: NA

Original General Comment #: 1

Comment: The "Construction Quality Assurance Final Report" is complete and provides a detailed account of the construction quality assurance activities performed during construction of the final cover.

Response: None.

Action: None.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 2

Page #: 5

Line #: NA

Original Specific Comment #: 1

Comment: Although detailed drawings of the cover system are included in other portions of the report, a cross section of the cover should be provided in Section 2 to support the discussion of the various layers.

Response: GeoSyntec Consultants agrees with U.S. EPA that a cross section of the final cover system would help illustrate the components of the various layers constructed.

Action: Figure 2-1 (Cross Section of Final Cover System) has been added at the end of Section 2. Also, Section 2 of the narrative has been revised to reflect the addition of Figure 2-1.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 5.5.3.3

Page #: 31

Line #: NA

Original Specific Comment #: 2

Comment: The text states that 81 field nuclear moisture/density tests and four drive cylinder tests were performed on the contouring layer and refers to Table 5-1. Table 5-1 indicates that 52 field nuclear moisture/density tests and discrepancies should be corrected.

Response: A total of 81 field nuclear moisture/density tests were performed on the contouring layer, as indicated in Section 5.5.3.3 of the narrative. The corresponding numbers on Table 5-1 are incorrect.

Action: Table 5-1 has been revised to show a total of 81 tests with 19 failing tests in parenthesis.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: 6.1

Page #: 49

Line #: NA

Original Specific Comment #: 3

Comment: The second paragraph of this section states "273,093 ft² (270,000 m²) of geomembrane was installed". The discrepancy between these values should be corrected.

Response: A total of 273,093 ft² of geomembrane was installed for the Cell 1 final cover construction. The corresponding value in SI units is 25,370 m².

Action: The second paragraph of Section 6.1 has been revised to read as "...The total quantity of geomembrane installed during the Phase III – Cell 1 final cover construction, as measured by CQA personnel, was 273,093 ft² (25,370 m²)..."

2. PROJECT DESCRIPTION

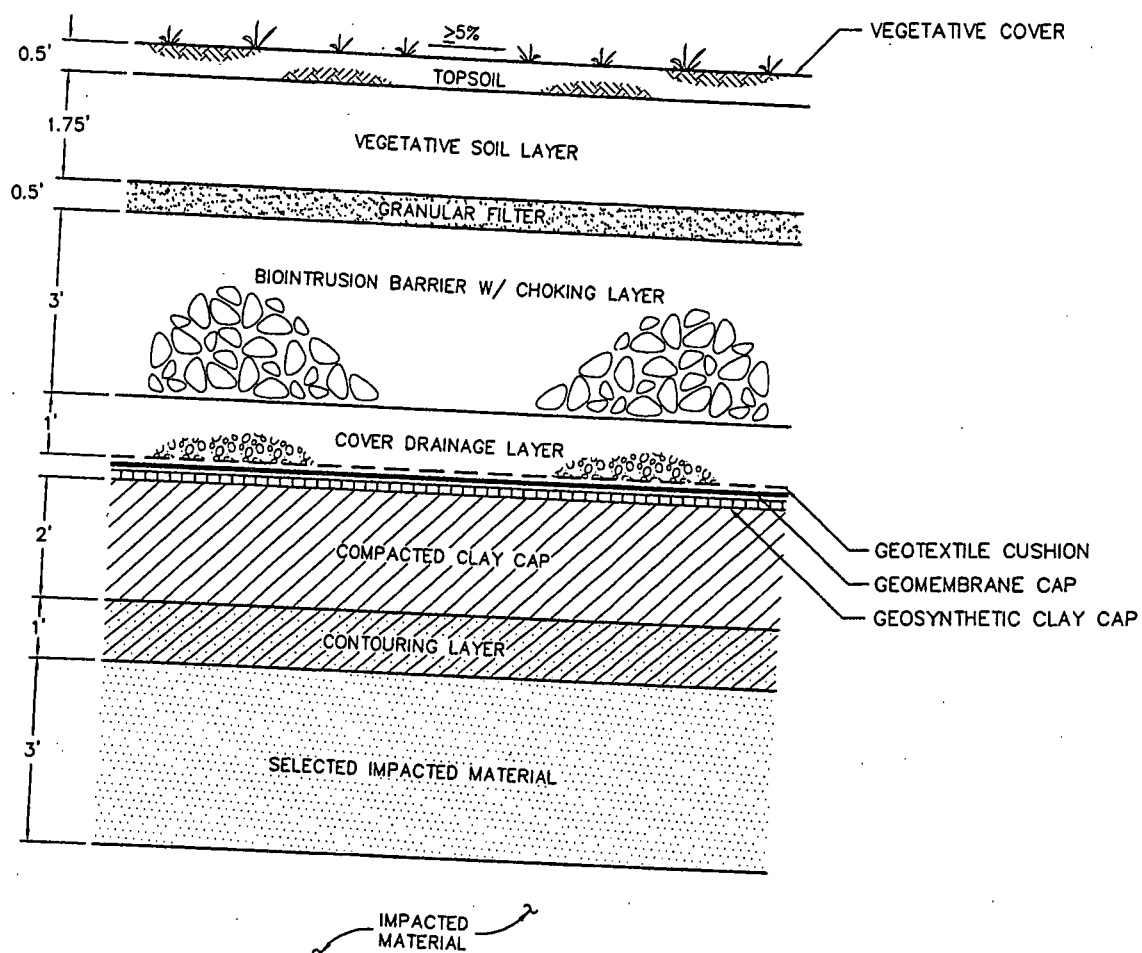
The OSDF design incorporates a final cover system and other engineering controls that meet the applicable or relevant and appropriate requirements (ARARs), DOE functional requirements, and general design criteria as described in the Design Criteria Package (DCP) developed and approved for the project during the design phase [GeoSyntec, 2000]. The final cover system, designed to isolate impacted materials in the OSDF, includes the following components, from top to bottom (Figure 2):

- 6-in. (0.15-m) thick topsoil layer;
- 1.75-ft (0.425-m) thick vegetative soil layer;
- 6-in. (0.15-m) thick granular filter layer;
- 3-ft (0.9-m) thick biointrusion barrier with choke stone layer;
- 1-ft (0.3-m) thick cover drainage layer;
- 8-oz/yd² (270-g/m²) geotextile cushion layer;
- 60-mil (1.5-mm) thick textured high density polyethylene (HDPE) geomembrane component of the composite cap;
- a geosynthetic clay cap (GCC) component of the composite cap;
- 2-ft (0.6-m) thick compacted clay cap component of the composite cap; and
- 1-ft (0.3-m) thick non-impacted contouring layer.

The Cell 1 final cover system footprint covers an area of approximately 8 acres (3.2 hectares); and is bounded on the north, west, and east by the perimeter drainage channels, and on the south by the temporary termination area for future Cell 2 final cover construction.

The Certified-For-Construction (CFC) Drawings and Technical Specifications, dated May 2000, for the Phase III construction project were prepared by GeoSyntec in accordance with the terms of Fluor Fernald Subcontract 95PS005028. The prime contractor for construction of the OSDF Phase III - Cell 1 final cover construction project was The IT Corporation (IT) of Monroeville, Pennsylvania. Installation of the

CROSS SECTION OF FINAL COVER SYSTEM ON-SITE DISPOSAL FACILITY



GeoSYNTEC CONSULTANTS
ATLANTA, GEORGIA

FIGURE NO.	2-1
PROJECT NO.	GQ1341-03.1
DOCUMENT NO.	F0131105.CDG
FILE NO.	F02F001.DWG

TABLE 5-1

**PHASE III - CELL 1 FINAL COVER CONSTRUCTION
COMPACTED FILL MATERIAL PROPERTIES SUMMARY**

DESCRIPTION	TEST STANDARD	PROJECT ⁽¹⁾ SPECIFICATIONS	TEST FREQUENCY (yd ³)	APPROXIMATE NUMBER OF TESTS REQUIRED ⁽²⁾	NUMBER OF TESTS PERFORMED (FAILURES)
LABORATORY TEST					
Particle Size: Sieve	ASTM D 422	100% Finer than 5.0 in. ⁽³⁾	1 per 5,000 yd ³	3	13
Compaction	ASTM D 698	---	1 per 5,000 yd ³	3	13
Moisture	ASTM D 2216 ASTM D 4643	---	1 per 5,000 yd ³	3	11
Soil Classification	ASTM D 2487	GC, SC, SM, ML, CL or CH	1 per 5,000 yd ³	3	13
Atterberg Limits	ASTM D 4318	---	1 per 5,000 yd ³	3	13
FIELD TEST					
Drive Cylinder Soil density Soil moisture	ASTM D 2937 ASTM D 2216	≥95% MDD ⁽⁴⁾ ± 3% OMC	1 per 25 passing nuclear tests	3	3
Nuclear Gauge: Soil density Soil moisture	ASTM D 2922 ASTM D 3017	≥95% MDD ± 3% OMC	1/10,000 ft ² /lift	30	52(0)82 (19)

- NOTES: (1) Reference Section 02200 of the Specification and Section 6 of the CQA Plan for further details.
(2) The approximate number of tests required is based on a total volume of 10,889 yd³ for the Phase III - Cell 1 final cover construction project.
(3) Compacted fill material was also used for construction of the contouring layer. The maximum particle size was 4.0 in. (see Section 02240 of Specification).
(4) MDD = maximum dry density (unit weight); OMC = optimum moisture content

6. CONSTRUCTION QUALITY ASSURANCE - GEOSYNTHETICS

6.1 General

GeoSyntec monitored the installation of the geosynthetics components of the cell 1 final cover system. Principal field activities are summarized in Section 3.1.3. Non-conforming or questionable practices observed by CQA personnel were brought to the attention of the Fluor Fernald QA and the CM for review and correction.

The total quantity of geomembrane installed during the Phase III - Cell 1 final cover construction, as measured by CQA personnel, was 273,093 ft² (25,370 270,000 m²). The panel layout record drawing for the geomembrane cap is presented in Appendix P.

6.2 Changes in Geosynthetics Specifications

RCI and DCN of the geosynthetics drawings and specifications were processed and approved according to procedures described in FEMP document number ED-12-5002 entitled "Engineering Design Change Process." These RCIs and DCNs were approved, as appropriate, by the design organization. Copies of the RCIs and DCNs issued for Phase III - Cell 1 final cover construction project are presented in Appendices R and S, respectively.

6.3 CQA of Geosynthetic Clay Cap

6.3.1 Conformance Testing and Documentation

A geosynthetic clay cap (GCC) was used as a component of the geosynthetics in the Cell 1 final cover system. Rolls of the Bentomat ST GCL, manufactured by Colloid Environmental Technologies Company (CETCO) in Fairmont, Georgia were used for the Phase III - Cell 1 final cover system construction.

For the Bentomat ST GCC, four (4) samples (Nos. GCC 01-1 through GCC 01-4) from GCC Lot No. 200110FA3 were collected for conformance testing. Two representatives from Fluor Fernald and one representative from GeoSyntec visited the CETCO plant in Fairmont, Georgia to observe production, review procedures, and sample material on 6-8 March 2001. All of the 4 Bentomat ST conformance samples were obtained at the factory prior to shipment of materials. The sampling frequency exceeded the minimum acceptable sample frequency of one per 100,000 ft² (9,300 m²) required by the Project Documents. Conformance samples were forwarded to

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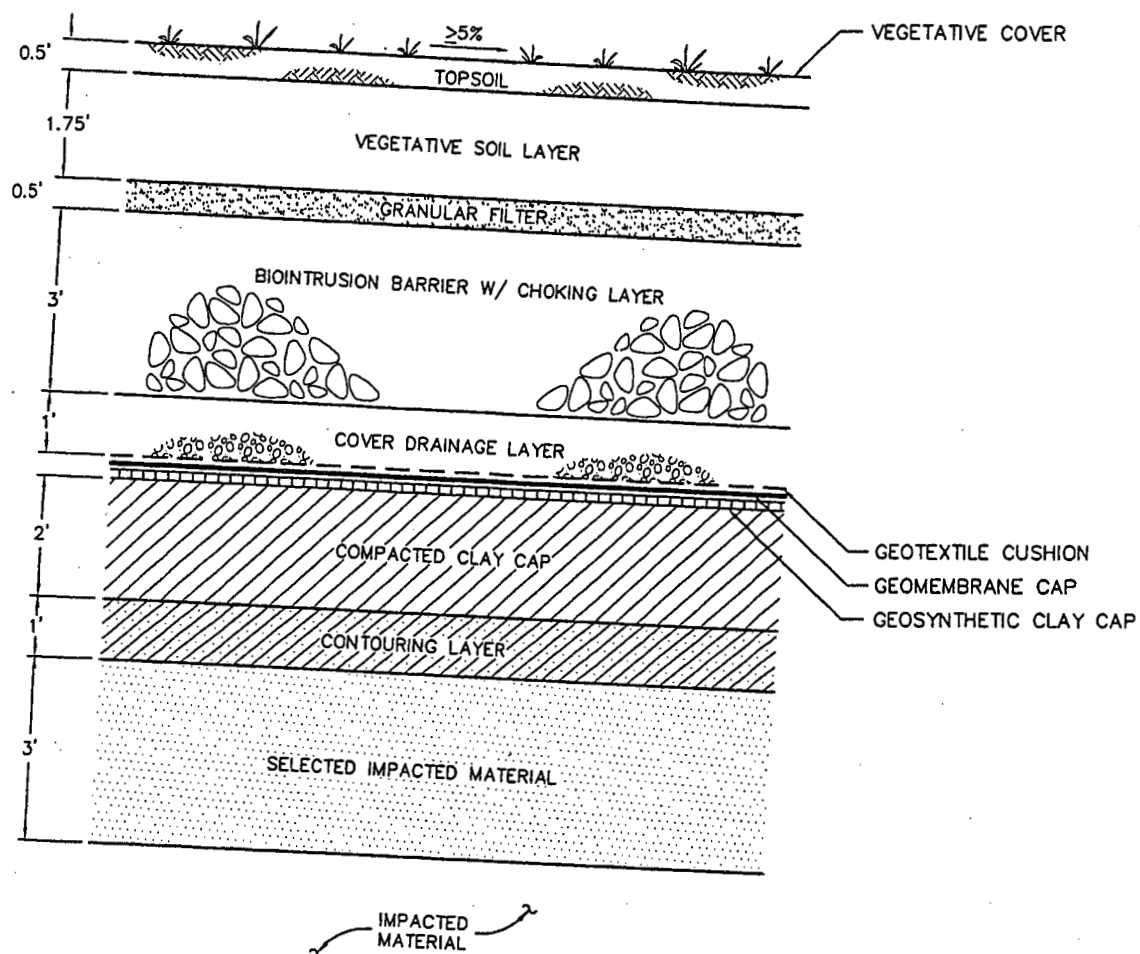
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